careers in

LOGISTICS

Rail Transportation Occupations

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Job Overview

Railroads have played a vital and colorful role in the economy and westward development of our nation. Prior to World War II, passenger travel made up a large portion of railroad business. After World War II, passenger travel declined due to competition with air and auto transportation. Today, railroads still play a very important role in California's economy.

The development of standard-sized freight containers led to the use of "containerized cargo" in the shipping industry. Shipments of raw materials or products can be transported from vessels to rail transportation in one container. The introduction of containerized cargo allowed freight movement in double-stacked rail cars or "stacktrains." Currently, freight shipments make up the largest portion of rail transportation. "Intermodalism" is the seamless shipment of containerized cargo using different means of transportation, such as ships, trains, and trucks. Railroads are a key link in the logistics supply chain.

Does a career in rail transportation appeal to you? If so, then investigate the occupations listed below in more detail.

Locomotive Engineers

Locomotive Engineers operate diesel, electric, or gas-turbine-electric locomotives to transport passengers or freight between stations. Engineers receive starting instructions from train dispatchers or conductors. They move controls such as throttles and airbrakes to drive the locomotive. Engineers monitor gauges and meters that measure speed, battery charge, and air pressure, both in the brake lines and in the main reservoir.

When on the open rail, Engineers confer with conductors and traffic control center personnel via computer, two-way radio, or mobile telephone to receive information about stops, delays, and train locations. Engineers must be very knowledgeable about the signaling systems, yards, and terminals on their travel routes.

Rail Yard Engineers, Dinkey Operators, and Hostlers

Rail Yard Engineers, Dinkey Operators (also known as Remote Control Operators), and Hostlers drive switching or small "dinkey" engines within railroad yards, industrial plants, mines and quarries, or construction projects. The word Hostlers originally referred to people who took care of horses or mules at an inn. As rail yard employees, Hostlers may provide engines with fuel, sand, and water. They also move engines around inside repair facilities, or in and out of a roundhouse.

Rail Transportation Occupations

Railroad Brake, Signal, and Switch Operators

Railroad Brake, Signal, and Switch Operators (also known as Train Service Personnel) perform a wide variety of job duties such as operating track switches to route cars to different sections of the yard. Brake Operators do the work on trains, while Switch Operators work on yard engines. They may signal engineers and set warning signals, help to couple and uncouple rolling stock to make up or break up trains, or inspect couplings, air hoses, and handbrakes.

Railroad Conductors and Yardmasters

Railroad Conductors assigned to freight trains review schedules, waybills, and shipping records to obtain loading and unloading information concerning their cargo. Conductors on passenger trains collect tickets, make announcements, and ensure passenger safety. When traveling on the open rail, Conductors use two-way radios and mobile telephones to communicate with train dispatchers, engineers, and Conductors of other trains. They use electronic monitoring devices that relay information about equipment problems on the train or the rail. They may arrange for the removal of malfunctioning cars for repairs, and may discuss alternate routes if there is an obstacle on the rail.

Yardmasters coordinate the activities of workers engaged in railroad traffic operations. The activities include making up or breaking up trains and switching inbound or outbound traffic to a specific part of the line. They inform Engineers where to move the cars to fit the intended train grouping. Switch crews work under the supervision of the Yardmasters.

Typical Tasks

Locomotive Engineers

- Confer with conductors or traffic control center personnel via computer, radio, and phones to issue or receive information concerning stops, delays, or oncoming trains.
- Inspect locomotives to verify adequate fuel, sand, water, and other supplies before each run, and to check for mechanical problems.
- Interpret train orders, signals, and railroad rules and regulations that govern the operation of locomotives.
- Monitor gauges and meters that measure speed, amperage, battery charge, and air pressure in brake lines and in main reservoirs.
- Observe tracks to detect obstructions.
- Inspect locomotives after runs to detect damaged or defective equipment.
- Prepare reports regarding any problems encountered, such as accidents, signaling problems, unscheduled stops, or delays.

Rail Yard Engineers, Dinkey Operators, and Hostlers

- Confer with conductors and other workers via radio-telephones or computers to exchange switching information.
- Drive engines within railroad yards or other establishments to couple, uncouple, or switch railroad cars.
- Drive locomotives to and from various stations in roundhouses to have locomotives cleaned, serviced, repaired, or supplied.
- Observe and respond to wayside and cab signals, including color light signals, position signals, torpedoes, flags, and hot box detectors.
- Operate and control dinkey engines to transport and shunt cars at industrial or mine sites.

- Operate track switches, derails, automatic switches, and retarders to change routing of train or cars.
- Couple and uncouple air hoses and electrical connections between cars.

Railroad Brake, Signal, and Switch Operators

- Connect air hoses to cars, using wrenches.
- Inspect couplings, air hoses, journal boxes, and handbrakes to ensure that they are securely fastened and functioning properly.
- Observe signals from other crewmembers so that work activities can be coordinated.
- Pull or push track switches to reroute cars.
- Raise levers to couple and uncouple cars for makeup and breakup of trains.
- Signal locomotive engineers to start or stop trains when coupling or uncoupling cars, using hand signals, lanterns, or radio communication.
- Monitor oil, air, and steam pressure gauges, and make sure water levels are adequate.
- Walk the full length of the train (a mile or more) to perform visual inspections as required.

Railroad Conductors and Yardmasters

- Confer with engineers regarding train routes, timetables, and cargoes, and to discuss alternative routes when there are rail defects or obstructions.
- Direct and instruct workers engaged in yard activities, such as switching tracks, coupling and uncoupling cars, and routing inbound and outbound traffic.
- Direct engineers to move cars to fit planned train configurations, combining or separating cars to make up or break up trains.
- Observe yard traffic to determine tracks available to accommodate inbound and outbound traffic.
- Signal engineers to begin train runs, stop trains, or change speed, using computers, telecommunications equipment, or hand signals.
- Collect tickets, fares, or passes from passengers.

*Detailed descriptions of these occupations may be found in the Occupational Information Network (O*NET) at online.onetcenter.org.*

Important Skills, Knowledge, and Abilities

Locomotive Engineers

- Operation and Control — Controlling operations of equipment or systems.
- Reading Comprehension — Understanding written sentences and paragraphs in work-related documents.
- Speaking — Talking to others to convey information effectively.
- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
- Transportation — Knowledge of principles and methods for moving people or goods by air, rail, sea, or road, including the relative costs and benefits.

Rail Transportation Occupations

- Public Safety and Security — Knowledge of relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property and institutions.
- Mathematics — Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.
- Far Vision — The ability to see details at a distance.
- Problem Sensitivity — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.
- Selective Attention — The ability to concentrate on a task over a period of time without being distracted.

Rail Yard Engineers, Dinkey Operators, and Hostlers

- Operation and Control — Controlling operations of equipment or systems.
- Equipment Maintenance — Performing routine maintenance on equipment and determining when and what kind of maintenance is needed.
- Transportation — Knowledge of principles and methods for moving people or goods by air, rail, sea, or road, including the relative costs and benefits.
- Mechanical — Knowledge of machines and tools, including their designs, uses, repair, and maintenance.
- Control Precision — The ability to quickly and repeatedly adjust the controls of a machine or a vehicle to exact positions.
- Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.
- Problem Sensitivity — The ability to tell when something is wrong or likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.
- Far Vision — The ability to see details at a distance.
- Near Vision — The ability to see details at close range (within a few feet of the observer).
- Reaction Time — The ability to quickly respond (with the hand, finger, or foot) to a signal (sound, light, picture) when it appears.

Railroad Brake, Signal, and Switch Operators

- Equipment Maintenance — Performing routine maintenance on equipment and determining when and what kind of maintenance is needed.
- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
- Coordination — Adjusting actions in relation to others' actions.
- Repairing — Repairing machines or systems using the needed tools.
- Transportation — Knowledge of principles and methods for moving people or goods by air, rail, sea, or road, including the relative costs and benefits.
- Mechanical — Knowledge of machines and tools, including their designs, uses, repair, and maintenance.
- Problem Sensitivity — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.

- Far Vision — The ability to see details at a distance.
- Reaction Time — The ability to quickly respond (with the hand, finger, or foot) to a signal (sound, light, picture) when it appears.

Railroad Conductors and Yardmasters

- Coordination — Adjusting actions in relation to others' actions.
- Speaking — Talking to others to convey information effectively.
- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
- Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.
- Administration and Management — Knowledge of business and management principles involved in strategic planning, resource allocation, human resources modeling, leadership technique, production methods, and coordination of people and resources.
- Transportation — Knowledge of principles and methods for moving people or goods by air, rail, sea, or road, including the relative costs and benefits.
- Public Safety and Security — Knowledge of relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions.
- Oral Expression — The ability to communicate information and ideas in speaking so others will understand.
- Near Vision — The ability to see details at close range (within a few feet of the observer).
- Written Comprehension — The ability to read and understand information and ideas presented in writing.

Work Environment

Rail Transportation workers spend most of their time outdoors in varying weather conditions. Conductors and Engineers working on local runs make frequent stops to pick up and deliver cars which can be very strenuous. Climbing up and down and getting off moving cars is grueling and can be hazardous. Brake Operators and Conductors may need to walk long distances in uneven track bed to inspect trains. All positions require the use of a computer for simple data lookup, retrieval, and input.

Trains operate 24-hours a day, 7-days a week; therefore, many rail transportation employees work varied shifts such as nights, weekends, and holidays. Employees working on freight trains that make long distance runs may spend several nights away from home.

Engineers and Conductors are placed on the "extra board." Employees on the extra board receive shift assignments on an as-needed basis to cover the movement of trains as traffic allows. This "on-call" work situation is typical throughout most train service personnel's career.

A number of different railroad unions represent various occupations in the industry. Most Locomotive Engineers belong to the Brotherhood of Locomotive Engineers. Other railroad transportation workers are members of the United Transportation Union.

Rail Transportation Occupations

California's Job Outlook and Wages

The California Outlook and Wage table below represents the occupation across all industries.

Standard Occupational Classification	Estimated Number of Workers 2004	Estimated Number of Workers 2014	Average Annual Openings	2006 Wage Range (per hour)
Locomotive Engineers				
53-4011	2,500	2,700	90	$20.16 to $30.16
Rail Yard Engineers, Dinkey Operators, and Hostlers				
53-4013	39,900*	38,900*	1,340*	**
Railroad Brake, Signal, and Switch Operators				
53-4021	2,000	1,300	20	$17.91 to $24.51
Railroad Conductors and Yardmasters				
53-4031	2,100	2,500	100	$18.80 to $27.38

Wages do not reflect self-employment.
***Average annual openings** include new jobs plus net replacements.*
Source: www.labormarketinfo.edd.ca.gov, Employment Projections by Occupation and OES Employment & Wages by Occupation, Labor Market Information Division, Employment Development Department.
** National figures. Source: Bureau of Labor Statistics, America's Career InfoNet, www.acinet.org.*
*** Not available.*

Trends

The employment growth of Rail Transportation Workers will experience no significant change from 2004 to 2014. However, opportunities will continue to arise from the need to replace workers who retire or leave the labor force for other reasons. Competition for available job opportunities will be keen as both railroads and job duties are consolidated.

The demand for freight service will continue as the intermodal transportation of goods expands. Also, the increased popularity of shopping via the Internet will continue to drive the need for shipping services. However, growth in the number of railroad transportation jobs may be adversely affected by technological advances such as larger, faster, more fuel-efficient trains and computerized classification yards that make it possible to move freight more inexpensively.

Training/Requirements/Apprenticeships

Railroads require that prospective employees have a minimum of a high school diploma or equivalent. Applicants must successfully pass a reading comprehension exam, a background investigation, a physical exam, and a drug/alcohol screening. All train service personnel and Engineers are subject to random drug and alcohol testing throughout their careers. They must also have good eyesight, color vision, hearing, and physical endurance. Applicants for Locomotive Engineer or Conductor positions must be at least 18 years of age. Employers generally fill Engineer and Conductor jobs with workers who have experience in train service occupations.

Locomotive Engineers complete a formal employer-sponsored training program that includes classroom, simulator, and hands-on instruction for locomotive operation. Engineers must pass hearing, vision, skills performance, and railroad operation knowledge tests along with a background check. Also, they must participate in periodic physical exams including drug and alcohol testing, to demonstrate their fitness for duty.

Conductors complete either a formal conductor-training program offered by their employer, or a conductor-training program through a community college. Sacramento City College offers a "Railroad Operations Program" for students in a career as a Conductor or Engineer. For further information, access www.scc.losrios.edu.

Recommended High School Course Work

High school courses in language arts, mathematics, automotive shop, and computer technology are helpful.

Where Do I Find the Job?

Direct application to employers remains one of the most effective job search methods. Use the *Search for Employers by Industry* feature on the *Career Center* page at www.labormarketinfo.edd.ca.gov to locate employers in your area. Search under the following industry names to get a list of private firms and their addresses:

- Line-Haul Railroads
- Support Activities for Rail Transport

Search these **yellow page** headings for listings of private firms:

- Railroad Companies
- Railroad Equipment, Services & Supplies
- Railroad Contractors
- Trains-Passenger

Where Can the Job Lead?

The career path for rail transportation workers begins with training to qualify as a Brake Operator, Switch Operator, and/or Conductor. Training is provided by each company to cover rules, safety procedures, and operations. Entry-level employees generally complete both formal classroom and outdoor on-the-job training. Promotion to Locomotive Engineer is usually based on experience in train service (as Brake Operator, Switch Operator, and/or Conductor).

Related Occupations
Automotive Body Repairers (see *Occupational Guide No. 68*)
Bus Drivers (see *Occupational Guide No. 2*)
Industrial Truck and Tractor Operators, Forklift (see Logistics Profile)
Paving, Surfacing, and Tamping Equipment Operators
Public Transportation Inspectors
Railroad Inspectors
Truck Drivers Light, or Delivery Services (see Logistics Profile)

Other Sources

Amtrak California
www.amtrakcalifornia.com

Association of American Railroads
www.aar.org

Brotherhood of Locomotive Engineers and Trainmen
www.ble.org

Union Pacific Railroad
www.uprr.com

United Transportation Union
www.utu.org